

Figures 2(a)-2(d) illustrates exemplary physical thread schedules for an exemplary program;

Figure 3A illustrates a flow chart of the software tool of the invention for capturing a logical thread schedule;

5 sub A 2- ~~Figure 3B illustrates a general critical section (GC critical section) for general critical events;~~

Figure 4 illustrates exemplary logical thread schedules and how they are identified;

CA Figure 5A illustrates a state diagram that illustrates the operation of the software tool of the present invention in replay mode and specifically a replay finite state automation;

Figure 6 illustrates a server and three clients showing connections during first and second executions, and specifically a network-delays problem;

Figure 7 illustrates a server and three clients, and specifically a mechanism for deterministic replay of connections;

Figures 8(a) and 8(b) respectively illustrate a flowchart for implementing a record and replay for a read;

Figures 9(a) and 9(b) respectively illustrate a flowchart for implementing a record and replay code for a write.

Figure 10 illustrates an "accept-and-connect" process in a record mode for a client and server configuration;

20 Figure 11 illustrates an "accept process" in replay mode for a server;

Figures 12(a) and 12(b) respectively illustrate an exemplary flowchart for implementing a more efficient record and replay code of a read and a record and replay code for a write, and

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